

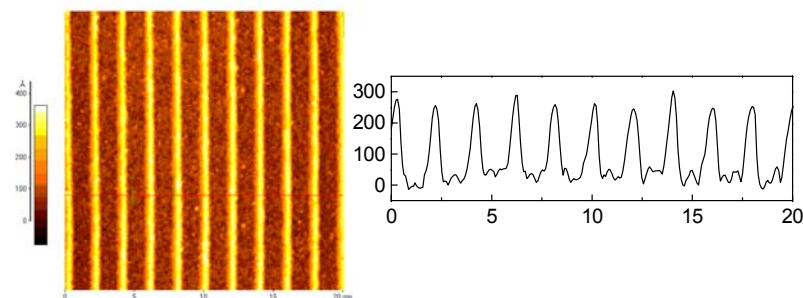
Photodynamic Azobenzene Functionalized Polymers

Jayant Kumar, University of Massachusetts, Lowell,

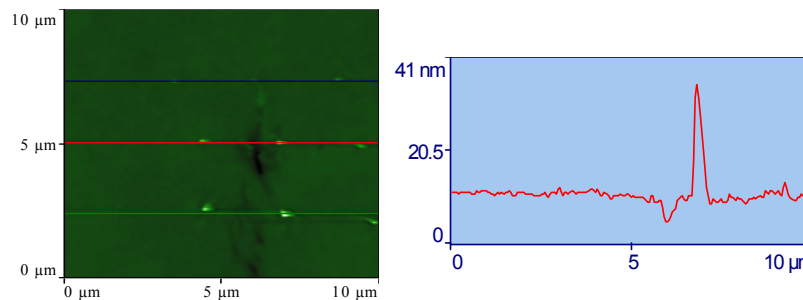
DMR 0075170

Research Activity

- Demonstration of Light induced mass transport in Azobenzene functionalized polymers.
- Elucidation of molecular weight and polymer conformation on recording of surface relief structures on azo-functionalized polymers.
- Maskless patterning (submicron size) of substrates using surface relief structures on azobenzene functionalized polymers.
- Photo-fabrication surface relief structures on the polymer films by Near-field scanning Optical Microscopy (NSOM).
- Enhancing the inscription rate of surface relief grating with an incoherent assisting light beam .



Maskless patterning of ITO Layer



Surface Relief Structures created by NSOM on an Azo Polymer film

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Broader Impacts of the Research

- Graduate (Mr. S. Yang, S. Lee and S.C. Kim, Langang Niu) and undergraduate students have received research experience and training.
- Two postdoctoral research associates (Dr. Ke Yang And Dr. Suizhou Yang) have carried out research in this area and have been trained.
- Interaction with area companies such as Stocker Yale Inc., Linden Photonics and Molecular Technologies Inc. on possible use of the materials for commercial application is being explored.
- Several presentations both invited and contributed at national and international conferences have been made. Fifteen papers and book chapters have been published to disseminate the knowledge during the course of the research.